

CR Number: 3013

External Reference: SAFER CR 139, SAFER CR 164

Category: SAFER XML, SAFER ICD

Component: SAFER/CVIEW

Synopsis: Standardization of data values in XML input transactions.

Summary: Data elements input to SAFER must be standardized to ensure data quality and integrity.

Status: Closed Approved

Disposition: [2006-03-30] Closed Approved

Description: [2004-10-18] During the 9/23 ACCB meeting Volpe led a discussion regarding left-justification of the CVIS_DEFAULT_CARRIER field. This is a data integrity issue that applies to many data elements, especially to those that could be interpreted as either character or numeric. Each XML transaction needs to be reviewed, but a general approach to addressing this issue is needed. Volpe will write one or more CRs to address this issue. The solution for the immediate problem with Nebraska registration data is that Nebraska will left-justify the values in the CVIS_DEFAULT_CARRIER field and re-baseline - this specific instance is addressed in Arch CR 2954 (SAFER CR 138). Arch CR 3013 (SAFER CR 139) addresses the general problem.

[2004-10-18] From SAFER CR 139

When searching data against the SAFER database, it has brought to our attention that some key data fields submitted from the XML input transactions are provided in an inconsistent manner.

A good example is that the IRP_ACCOUNT_NUMBER in T0020 can have leading zeros, leading space and etc. Another example is IRP_CARRIER_ID_NUMBER OR CVIS_DEFAULT_CARRIER in T0022 where leading zeros and null can be an issue to CVISN or PRISM states.

This CR is intended to address the need to standardize the input data fields as to how the data value should be provided to SAFER. The result of this effort shall improve the data integrity and data quality of the SAFER database.

The Volpe Center is conducting technical analysis on all XML input transactions and the SAFER database. Based on the analysis, a draft of SAFER data requirements will be developed and distributed to the stakeholders for review and discussion.

[2004-10-25] Presented and discussed at the 2004-10-21 ACCB meeting.

This CR will be posted to the CVISN System Architects list serv for review.

[2004-11-22] Presented and discussed at the ACCB meeting on 2004-11-18.

Recommended for FMCSA approval. Volpe is continuing their analysis of this problem and will report back. Approved for Volpe to work on standards. When complete, a draft of SAFER data requirements will be distributed to the stakeholders for review and discussion.

[2005-03-01]

Contents of SAFER CR 164: This CR is created for a defect identified by MDCVIEW & APLCVIEW. Some vehicle data provided by SAFER has IRP_Weight_Carried with a null, blank or zero value. It is suggested that there should be a constraint for the

value of IRP_Weight_Carried submitted from CVIEW.

If Vehicle_IRP_Juris.IRP_Jurisdiction is not null, the Vehicle_IRP_Juris.IRP_Weight_Carried must be a number greater than 10,000. Blank, null and zero weights should not be allowed.

In the current design of SAFER, Vehicle_IRP_Juris.IRP_Jurisdiction and Vehicle_IRP_Juris.IRP_Weight_Carried are both mandatory fields for XML input. However there is no specific requirement for the input value. The datatype of Vehicle_IRP_Juris.IRP_Weight_Carried is Varchar(8) which allows blank, null and zero values to exist in SAFER.

Volpe will perform technical analysis to determine whether the value checking shall be implemented during the input process or at the database level.

-----End SAFER CR 164

[2005-03-01] Architecture CR 3094 (SAFER CR 164) was presented and discussed at the 2/17/05 ACCB meeting.

Volpe pointed out that SAFER release 4.9 will already make this a mandatory field whenever a jurisdiction is provided, which meets a significant objective of the CR. The remaining significant issue is to block zero values. The ACCB decided that this CR could be incorporated into SAFER CR 139 (Arch CR 3013): Standardization of data values in XML input transactions and will be discussed at the next ACCB meeting.

[2005-03-21] SAFER CR 139 was presented and discussed at the 3/17/05 ACCB meeting.

Volpe took a first cut at standardizing data elements by looking at the key identifiers in transactions T0019, T0020, T0021, T0022 and T0024 and presented an Excel spreadsheet to the ACCB. The key identifiers potentially handle numbers in the input files with varchar2 as the data type in the database. Leading zeroes/spaces, trailing spaces and nulls are a common problem. It was mentioned that some states use leading zeroes as part of the number, such as, IRP_account_number. Others use special characters in the License_plate_number. States suggested taking the spreadsheet back to their IRP folks for review and then providing feedback to Volpe. The spreadsheet is attached.

[2005-04-25] Presented at the 4/21/05 ACCB meeting.

Volpe will compile the comments received and continue their analysis of the CR. States are encouraged to review the excel spreadsheet and send comments via the list serv.

[2005-08-02] Presented at the 7/28/05 ACCB meeting.

Seven states have commented on Volpe's proposed solution, which was posted to the list serv after the June ACCB meeting. Volpe will post the updated spreadsheet to the CVISN System Architects list serv and solicit a final round of comments.

[2005-08-05] Jingfei Wu (Volpe) posted the following to the CVISN System Architects list serv:

"Enclosed is the latest spreadsheet containing the states' comments on the proposed standardization solution. Since this will be the final round of posting, states are recommended to submit any suggestions they might have to the Volpe Center." The spreadsheet has been attached to this CR.

[2005-08-19] Discussed at the 8/18/05 ACCB meeting

The spreadsheet will be updated with additional comments received from Maryland

and Texas. Volpe will post the updated spreadsheet to the CVISN System Architects list serv. There will be some consideration as to how existing standards can be incorporated into the spreadsheet.

[2005-09-22] Discussed at the 9/22/05 ACCB meeting

Andrew Wilson discussed a new Summary Spreadsheet that Volpe developed based on the spreadsheet containing all of the state's comments. He proposed to consolidate today's discussion to include three main suggestions:

1. Take out leading and trailing spaces.
2. Allow leading zeroes in some fields.
3. Eliminate leading zeroes where the carrier_id_number is used.

[2005-12-20] Volpe's summary of the discussion and comments from the CVISN ACCB state participants:

"The common data problem in the XML input transactions are found to be leading zeroes, leading spaces, trailing spaces, zeroes and null. When the data for the same fields are inconsistently provided through different transactions containing this sort of data problem, users are not be able to perform query join to generate meaningful reports. The ACCB has suggested SAFER to programmatically remove them without changing the data provided by the states. The following is the list of requirement that SAFER needs to implement in order to address the data format issues:

1. Remove leading and trailing spaces for all key fields listed in the spreadsheet: CR3013-SAFER139_data standardization_102505.xls.
2. Allow leading zeroes in these fields such as IFTA_license_number, Fleet_number, IRP_account_number, VIN, and license_plate_number.
3. Eliminate leading zeroes where USDOT number is used such as carrier_id_number and SAFETY_carrier.

Data fields such as VIN and license plate number may have special characters as part of the data. SAFER will implement validation check against the existing standards. SAFER will also perform validation for USDOT number against the MCMIS data source which is the authoritative source for the carrier information. "

[end Volpe summary 12/20/05] See also 12/19/05 spreadsheet attachment

[2006-01-05] Presented and discussed at the 12/22/05 ACCB meeting.

The ACCB decided that states will be required to recertify based on the new data standards and re-baseline their data in order to improve data quality in SAFER. This CR will be implemented in SAFER Release 5.0 due out in late February 2006. The new data standards will be enforced for each state as they recertify. After recertification, SAFER will reject the records that do not conform to the new data standards.

[2006-01-25] Presented and discussed at the 1/19/06 ACCB meeting.

VIN validation was the topic of discussion for this CR. Jingfei Wu (Volpe) pointed out that only the data formatting rules will be enforced, and the IFTA/IRP/VIN validation will be in the following release of SAFER after receiving comments from stakeholders. Some states expressed an interest in getting a warning for invalid VINs instead of rejections. Validation is done at the jurisdiction site because of home-made VINs that the state considers valid. These VINs would fail the VIN validation routine at SAFER. It was suggested that states send their VIN patterns to Volpe so SAFER can check against those as well. Phase 1 of the implementation will be to enforce the edit checks for the formatting rules listed in the specification document. After a state is recertified, the rules will be enforced for that state. Phase 2 of this CR will enforce IFTA/IRP/VIN validation.

Phase 1 will be implemented in the February 2006 release of SAFER v5.0. The SAFER CR 139 Specification has been added as an attachment to this CR.

[2006-03-23] Presented at the 2006-03-23 ACCB meeting.

Phase 1 of this CR was released in SAFER 5.0. Edit checks are in place, and states need to recertify their CVIEWs by the end of the Calendar Year 2006. The VIN/IRP account / IFTA account validation checks will be implemented in Phase 2. Iteris asked if the states will have to recertify again when Phase 2 is released. Volpe said yes. States asked if Phase 2 validation rules would cause SAFER to reject the records. Volpe said that would be up to the stakeholders. If the stakeholders only want a warning and not a rejection, then recertification wouldn't be necessary. This CR will be closed, and the Phase 2 changes will be documented in new Architecture and SAFER CRs.

Fix:

Comment:

Attachment names: CR139_data standardization.xls 2004-05-20 CR3013-SAFER139_data standardization_Comments.xls 2004-05-21 CR3013-SAFER139_data standardization_Comments.xls 2005-12-19 CR3013-SAFER139_data standardization_Comments.xls 2006-01-25_CR 139 Specification.doc

Responsibility: Magnusson Nancy C.

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Entered By: Magnusson Nancy C.

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